Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_

291 Chapter 7.1-7.4 Review Problems

State the degree and leading coefficient for the following polynomials.

1. 2x2 – 6x3 + 5x4 – 8 Degree\_\_\_\_\_ Leading coefficient\_\_\_\_\_

2. 7x8 + 3x3 – 2x Degree\_\_\_\_\_ Leading coefficient\_\_\_\_\_

3. 4x4 + 3x5 – 2x3 + 10 Degree\_\_\_\_\_ Leading coefficient\_\_\_\_\_

For #s 4-6, answer the following questions:

a. Is the function odd or even?

b. Describe the end behavior.

c. State the number of real zeros.



**#4**

4. a.\_\_\_\_\_\_\_\_\_\_\_\_

b. As , then \_\_\_\_\_\_\_\_

As , then \_\_\_\_\_\_\_\_

c.\_\_\_\_\_\_\_\_\_\_\_\_\_

**#5**

5. a.\_\_\_\_\_\_\_\_\_\_\_\_

b. As , then \_\_\_\_\_\_\_\_

As , then \_\_\_\_\_\_\_\_

c.\_\_\_\_\_\_\_\_\_\_\_\_\_

6. a.\_\_\_\_\_\_\_\_\_\_\_\_

**#6**

b. As , then \_\_\_\_\_\_\_\_

As , then \_\_\_\_\_\_\_\_

c.\_\_\_\_\_\_\_\_\_\_\_\_\_

Solve using quadratic techniques. (Do the work on loose leaf.)

7. x5 – 64x = 0 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 8. x3 + x2 + 12x + 12 = 0\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. x4 -13x2 + 40 = 0\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 10. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. x3 – 64 = 0 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Graph the following function on your calculator. If they exist, calculate the real zeros, relative maximum and relative minimum. (Round to three decimal places)

Note: You may need to adjust your window or zoom to see the full graph

12. f(x) = 3x3 + 4x2 – 2x – 4

Zeros\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Max\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Min\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. f(x) = -2x4 + 3x2 – x + 1

Zeros\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Max\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Min\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. Find k such that… 15. Find k such that….

(x-2) is a factor of f(x) = 3x4 – 6x3 + x2 – 3x + k. (x + 3) has a remainder of 5

f(x) = -4x3 – 6x2 – 3x + k

16. Use synthetic substitution to find P(2). P(x) = 4x5 – 3x3 + 2x – 3.

17. Sketch an odd function with a positive leading coefficient and a degree of 5. (Sketch the max number of turning points.)

18. Sketch an even function with a negative leading coefficient and a degree of 6. (Sketch the max number of turning points.)